

REMARKS

The Applicants respectfully traverse and request reconsideration. The Applicants wish to thank the Examiner for indicating that Claims 12, 13, 17 and 18 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. Claims 12 and 17 are currently amended to correct a typographical error.

Claims 1 through 3, 8 through 10, and 19 through 25 stand rejected under 35 U.S.C. § 102(e), based on U.S. Patent No. 6,507,366 (Lee). Claims 5 through 7 and 14 through 16 are rejected under 35 U.S.C. § 103(a) based on U.S. Patent No. 5,923,365 ("Tamir") in view of Lee. Claims 5 through 7 and 14 through 17 are rejected under 35 U.S.C. §103(a) based on Tamir in view of Lee.

Lee

Lee relates to an apparatus and method for automatically tracking a moving object, so that the object is always positioned in front of the lens of a camera by controlling the camera. (Lee, col. 1, lines 7-10.) Lee is directed to solving the problem of a camera tracking the object when the object is beyond the range in which the camera can be rotated. (Lee, col. 1, lines 47-51.) By expanding the effective region for tracking, automatic tracking of the object can continue even if the camera has reached one of its rotational limits. (Lee, col. 4, lines 54-56.)

Tamir

Tamir is directed to a sports event video manipulating system. The system is limited to the analysis of video clips captured during sporting games. (Tamir, col. 1, lines 13-16.) "A problem usually encountered in the analysis of team games is the difficulty in conceptualizing a *whole wide field* of view of an offensive or defensive tactic out of the succession of partially overlapping video frames that were captured by at least one T.V. camera using relatively narrow

fields of view centering around the instantaneous location of the ball and active players.”

(Tamir, ¶ 11, lines 37-44 emphasis added).

All moving objects in the scene (players, referees and the ball) are continuously detected and tracked from frame to frame. (Tamir, ¶ 10, lines 28-30, Figs. 2, 4.) Tamir teaches “[A]utomatic tracking and highlighting of objects selected on a first frame of a segment throughout the sequence of frames composing an event.” (Tamir, ¶ 8, lines 5-8.) As used in Tamir, “[T]he term ‘highlighting’ refers to any suitable emphasis of an individual object” (Tamir, ¶ 11, lines 18-27.) As such, Tamir repeatedly teaches tracking an object by highlighting the object. (See, for example, Tamir, ¶ 1, line 38; ¶ 2, line 28; ¶ 5, lines 5, 12; ¶ 8, lines 5, 50, 57.) A problem that has been encountered and identified as a possible obstacle to the edge detection task is image degradation due to motion-induced blur. This may be due either to camera scanning or to object motion. (Tamir, ¶ 9, lines 21-24.) Proper measures to prevent edge and texture aliasing are taken when applying any part of these dynamic emphasizing techniques. (Tamir, ¶ 11, lines 27-29.)

§102 Rejections

Claims 1 through 3, 8 through 10, and 19 through 25 stand rejected under 35 U.S.C.

§ 102(e), based on Lee.

Independent Claim 1

Applicants claim, *inter alia*, “beginning a zoom mode; identifying a first portion of an image; displaying the first portion; detecting motion of an object within the portion of the image; selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image; and displaying the second portion.”

The Office Action asserts that Step 330 of Fig. 3A in Lee describes “identifying a first portion of an image.” However, Step 330 describes “detect initial image frame” rather than

"identifying a first portion of an image." Further, the cited portion of Lee at Step 330, which states "detect initial image frame," is limited merely to detecting an initial image frame rather than, *inter alia*, "identifying a first portion of an image" as required by the claims. Applicants would like to point out the distinction between Lee in Step 330 of Fig. 3A, which is limited to "detect initial image frame" rather than "identifying a first portion of an image" as claimed. The cited portion of Step 330 in Fig. 3A does not make reference to any portion of an image let alone "identifying a first portion of an image." (Col. 8, lines 53-55 emphasis added). Additionally, the cited portion of Lee at Step 330 which states "detect initial image frame," is limited to detecting a frame rather than, *inter alia*, "identifying a first portion of an image" as required by the claim. In contrast to detecting an entire video frame, as cited in Lee, Applicants claim, among other things, "identifying a first *portion of an image*." (Claim 1, emphasis added.)

As taught by the Applicants' specification, the identification of a first portion of an image corresponds to a zoom portion selected by the user that indicates the portion of an image/video that the user wishes to magnify. (Page 9, last three paragraphs.) As shown above, Lee, as cited, fails to disclose, among other things, this identification of a first portion of an image in connection with a selected zoom mode. Lee as cited is referring to a completely different parameter or condition from "identifying a first portion of an image," as claimed. As a result, Lee as cited fails to anticipated the elements as arranged in Claim 1, namely, "identifying a first portion of an image." The Applicants respectfully submit that the rejection is improper and Claim 1 is in proper condition for allowance.

The Office Action cites to Fig. 5 for teaching "displaying the first portion" and "is met by Fig. 5 which shows a position of the object on the screen." However, the cited portion of Lee merely shows three general regions as opposed to "displaying the first portion." Since Lee in Step 330 in Fig. 3A did not identify a first portion of an image, Lee in Fig. 5A cannot make

reference to an element that was not described in Step 330. Applicants would like to point out the distinction between Lee in Step 330 of Fig. 3A, which is limited to “identifying a first portion of an image,” and “displaying the first portion,” as claimed.

The Office Action recites Step 350 of Fig. 3A in Lee as teaching “detecting motion of an object within the portion of the image.” However, Step 350 of Fig. 3A in Lee is limited to asking the question “is [a] motion vector detected?” rather than “detecting motion of an object within the portion of the image.” Lee, at Step 350, although describing a motion vector as cited, makes no mention of detection of an object within the portion of the image. Therefore, the cited portion of Lee does not teach the claimed elements arranged as required by the claims, namely, “detecting motion of an object within the portion of the image.” Further, since Lee as cited in Steps 330 and 350 fails to describe the first portion of an image, Lee also fails to describe detecting motion of an object within the portion of the image. Accordingly, Applicants request such a showing. For at least these reasons, Lee as cited fails to describe the claimed elements as asserted in the Office Action. As a result, Lee fails to anticipate the claims.

Lee as cited in the Office Action recites “detect subsequent image frame at Step 340” and “tracking object” as shown in Step 360, rather than “selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image.” Lee as cited instead teaches detecting a subsequent *image frame* rather than “selecting a second portion of the image.” Further, Lee as cited at Step 340 teaches the detection of a subsequent image frame rather than a second portion of the image, let alone “selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image.” Additionally, where the claims recite the “second portion of the image such that the object appears at least a predetermined distance from an edge,” Lee as cited appears to make no reference to the object appearing a distance from an edge. For

example, Lee at Steps 340 or 360 as cited fails to describe any type of edge or any type of distance from a second portion of the image. Indeed, since Lee at Step 340 requires detection of an entire subsequent image frame, Lee does not teach a second portion of an image and therefore cannot teach a second portion of an image at a predetermined distance from an edge of the second portion of the image. For example at Step 350, the question "is motion vector detected?" is with respect to the detection of a subsequent image frame, as explicitly shown in Step 340, rather than making reference to an object appearing at least a predetermined distance from an edge of the second portion of the image.

Rather than describing "selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image," the Office Action, citing Lee at Steps 340 and 360, describes "detect subsequent image frame" and "is motion vector detected?" The Office Action cites no reference in Lee to any edge of the second portion of the image. As such, the Examiner has ignored another principal element of the invention. As a result, Lee is therefore referring to a completely different condition or situation with respect to the claimed elements as recited, namely, "a motion vector" rather than "selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image." As stated previously, Lee merely teaches the detection of a motion vector rather than "selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of a second portion of the image."

Applicants would like to again point out the distinctions as shown above between that taught by Lee, on the one hand, and, on the other hand, "beginning a zoom mode; identifying a first portion of an image; displaying the first portion; detecting motion of an object within the portion of the image; selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image; and displaying the

second portion on the other.” Further, Tamir cannot zoom in on each object as claimed since each player moves in a different direction, making the zoom mode as claimed impossible.

Consequently, Lee does not teach the claimed elements as arranged by the claims, including, among other things, “selecting a second portion of the image such that the object appears at least a predetermined distance from an edge of the second portion of the image.”

Dependent Claim 2

Claim 2 explicitly recites the condition, “When at least one edge of the second portion of the image extends beyond the image, the zoom mode is terminated.” The Examiner’s citation to col. 7, lines 1 through 6, does not teach this limitation. The Applicants respectfully believe Claim 2 is in proper condition for allowance.

The Lee language cited in the Office Action states “if it is judged that no more zooming can be performed while the object is not included in the effective region (to be described below), the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation, and controls the process to return to Step 310 of the initial state (Step 371C)” rather than “when at least one edge of the second portion of the image extends beyond the image, terminating the zoom mode.” The Office Action cites no reference in Lee as cited to “at least one edge of the second portion of the image,” let alone “when at least one edge of the second portion of the image extends beyond the image.” Further, rather than “terminating the zoom mode” according to the second portion of Lee, the process in Lee returns to Step 310 of the initial state for initialization of the camera. As such, the Office Action ignores yet another principal element of the invention, namely, “when at least one edge of the second portion of the image extends beyond the image” and “terminating the zoom mode.” As previously stated, Lee merely teaches “the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation” rather than “when at least one edge of the second portion of the

image extends beyond the image.” Additionally, the Office Action fails to show where Lee as cited describes “at least one edge of the second portion of the image,” let alone “at least one edge of the second portion of the image extends beyond the image.” Consequently, Lee does not teach the claimed elements as arranged in the claims, including, among other things, “at least one edge of the second portion of the image extends beyond the image, terminating the zoom mode.”

With regard to Claim 2, the Applicants respectfully repeat the relevant remarks made with respect to Claim 1. Specifically, the Applicants note that, as cited, Lee fails to describe, among other things, the detection of an edge or the identification of a first or second portion of an image. Therefore, Lee also fails to teach any subsequent limitation upon Claim 2. Specifically, Lee does not anticipate the step of terminating the zoom mode when at least one edge of the second portion of the image extends beyond the image.

Dependent Claim 3

The Office Action merely refers to the rejection of Claim 2 to reject Claim 3. With regard to Claim 3, the Applicants respectfully repeat the relevant remarks made above with respect to Claims 1 and 2. Specifically, the Applicants note that, as cited, Lee fails to teach, among other things, “measuring a difference between the first portion of the image and the second portion of the image” and “when the difference between the first portion of the image and the second portion of the image exceeds a predetermined threshold, terminating the zoom mode.” As described above, Lee fails to teach, among other things, the detection of an edge, and the identification of a first or second portion of an image. Therefore, Lee also fails to teach any subsequent limitation upon Claim 3. Specifically, Lee does not anticipate the step of “measuring a difference between the first portion of the image and the second portion of the image” and “when the difference between the first portion of the image and the second portion of the image exceeds a predetermined threshold, terminating the zoom mode.”

Dependent Claim 8

The Applicants repeat the same remarks as with respect to Claim 1, and on that basis believe Claim 8 is in proper condition for allowance. Claim 8 contains a step of, among other things, "beginning a zoom mode; identifying a first portion of an image; displaying the first portion in a zoom frame within a full frame of the image; detecting motion of an object within the zoom frame; deselecting a second portion of an image, such that the object appears at least a predetermined distance from an edge of the second portion of the image; and displaying the second portion in the zoom frame." Additionally, Claim 8 recites other novel and nonobvious elements and is believed by the Applicants to be in proper condition for allowance.

Dependent Claim 9

The Applicants repeat the same remarks as with respect to Claim 1 and Claim 2, and on that basis believe Claim 9 is in proper condition for allowance. Claim 9, dependent upon Claim 8, contains language similar to that of Claim 2 and is therefore also believed to be in proper condition for allowance. Claim 9 contains, among other things, "at least one edge of the second portion of the image extends beyond the image, terminating the zoom mode." Additionally, Claim 9 recites other novel and nonobvious elements and is believed by the Applicants to be in proper condition for allowance.

Dependent Claim 10

The Applicants repeat the same remarks as with respect to Claim 1 and Claim 3, and on that basis believe Claim 10 is in proper condition for allowance. Claim 10 contains, among other things, "measuring a difference between the first portion of the image and the second portion of the image; and when the difference between the first portion of the image and the second portion of the image exceeds a predetermined threshold, terminating the zoom mode." Additionally,

Claim 10 recites other novel and nonobvious elements and is believed by the Applicants to be in proper condition for allowance.

Dependent Claim 19

The Applicants repeat the above relevant remarks. Again, as previously stated, rather than describing "the second portion of the image," Lee teaches "the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation." (Lee, col. 7, lines 4 through 5.) Therefore, rather than "wherein the second portion of the image is selected such that the at least one object remains within the second portion of the image," Lee actually teaches recognizing that the object is beyond the tracking range. The Applicants submit that Lee, as cited, does not disclose the Applicants' claimed subject matter, and further teaches away from the Applicants' invention, as discussed above. Claim 19, dependent upon Claim 1, contains new and nonobvious matter not contained in Claim 1 and therefore is also believed to be in proper condition for allowance.

Dependent Claim 20

The Applicants repeat the above relevant remarks. Claim 20, dependent upon Claim 1, contains new and nonobvious matter not contained in Claim 1 and therefore is also believed to be in proper condition for allowance.

Independent Claim 21 and Dependent Claims 22 through 25.

The Applicants repeat the above relevant remarks. As previously stated, Lee as cited states that "the zoom/focus controller 6 recognizes that the object is *beyond* the tracking range of the zooming operation, and controls the process to return to Step 3, the initial state. (Step 71c)" (Lee, col. 7, lines 1 through 6), and therefore Lee teaches the condition of controlling the process in response to recognizing that the object is beyond the tracking range. Since Lee requires that action be taken only when the object is beyond the tracking range of the zooming operation, Lee

does not teach, and further teaches away from, "such that the at least one object remains within the zoom image in response to detecting motion of the at least one object." Applicants submit that Lee as cited does not disclose the Applicants' claimed subject matter, and further teaches away from the Applicants' invention, as discussed above.

With respect to Claim 21, the Office Action merely refers to rejection of Claim 1. As previously stated, Lee teaches "the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation, and controls the process to return to Step 310 of the initial state (Step 371c)" (Lee, col. 7, lines 1 through 6) and, as such, is limited to controlling the process only when "the object is beyond the tracking range of the zooming operation" rather than "such that the at least one object remains within the zoom image." Therefore, since Lee as cited teaches controlling the process based on the condition "when the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation," Lee fails to teach "such that the at least one object remains within in the zoom image," let alone "adjusting the relationship of the zoom image relative to the full frame, such that the at least one object remains within the zoom image in response to detecting motion of the at least one object." As such, the Office Action fails to show how Lee anticipates Claim 21.

With respect to Claim 22, the Office Action merely refers to the rejection of Claim 1. Claim 22 recites, among other things, "wherein the zoom images is identified, such that the zoom image displays the at least one object while in motion." The Office Action fails to show where Lee teaches "such that the zoom image displays the at least one object while in motion." Further, the undersigned requests that the Examiner provide a citation or recitation of Lee showing each and every element as claimed pursuant to 37 C.F.R. §1.014(b)(2). Consequently, at least for the reasons stated above, the alleged reference-by-reference and limitation-by-limitation analysis fails to demonstrate how Lee teaches or suggests the combination to yield the

claimed invention. As a result, the Applicants submit that the Office Action fails to show how the references cited anticipate the claims.

With respect to Claims 23, 24 and 25, Applicants submit that Lee as cited does not disclose the Applicants' claimed subject matter, and further teaches away from the Applicants' invention, as discussed above. Claims 22 through 25 are dependent upon Claim 21, containing new and nonobvious subject matter not contained in Claim 21, and therefore are also believed to be in proper condition for allowance.

Rejections under 35 U.S.C. §103(a)

Claims 4 and 11 are rejected under 35 U.S.C. § 103(a), again based on Lee.

Dependent Claims 4 and 11

With respect to Claims 4 and 11, the Applicants respectfully repeat the relevant remarks made with respect to Claims 1, 4, 8 and 16. The Office Action acknowledges that "Lee does not specifically disclose an MPEG image." Because Lee does not anticipate identifying a first or second *portion* of an image and is concerned only with tracking an entire camera field of view, the Applicants maintain that Lee cannot make obvious any subsequent limitation describing the type of image corresponding to a selected portion. Furthermore, the Applicants cannot find where Lee describes the use of detecting motion of an object within the portion of the image by examining MPEG2 motion vectors. According to the Office Action, although Lee does not specifically disclose an MPEG image, one would be motivated to modify Lee "in order to effectively utilize the MPEG standard." However, such an assertion is conclusory and contradictory. The Applicants respectfully request a showing including the column and line number within Lee that suggests this limitation. Accordingly, the Applicants respectfully further believe Claims 4 and 11 recite novel and nonobvious subject matter and are in proper condition for allowance.

Independent Claims 5 and 14

Claims 5 through 7 and 14 through 17 are rejected under 35 U.S.C. §103(a) based on Tamir in view of Lee.

Claims 5 and 14 recite a television system corresponding to Claim 1 and is also believed to be in proper condition for allowance. The Applicants repeat the above relevant remarks. The Office Action acknowledges that Tamir does not disclose “a claimed tuner operative to receive a video image” and “while all edges of the selected portion of the video image are within the video image to zoom to the selected portion of the video image, to detect movement of an object within the selected portion of the video image, and to select a second portion of the video image to redefine the selected portion of the video image.” (Office Action p. 7(a) and (d).)

However, the Examiner takes official notice that a tuner is a very well known object in the art and therefore it would have been obvious to those skilled in the art at the time the invention was made to provide a tuner device to modify the system of Tamir. Nevertheless, the system described by Tamir, rather than using a tuner, would likely receive a signal directly from a camera or video player as part of a sports analysis system and as such would not need the use of a tuner (Tamir, col. 6, lines 59 through 65); such a device would be unnecessary. Therefore, pursuant to M.P.E.P. 2144.03, the Applicants hereby challenge the Examiner’s assertion that such a device as arranged in the claims is very well known in light of the teachings of Tamir in the context of Tamir’s sports analysis system, since Tamir is clearly more likely directed to a closed circuit camera system or private video recorder rather than a broadcast television system to be viewed by the general public, and since Tamir teaches the use of this system specifically for the aid of players and coaches rather than for any entertainment value, as would be the case in a broadcast television system. Because Tamir is intended to be used by “coaches and players who have viewed the video film in order to understand their own and opponents’ past

performance," Tamir is not directed towards broadcast video, but rather the specialized analysis of a sporting event on a closed circuit camera system. (Tamir, col. 1, lines 13 through 21.) Claims 5 and 14 also recite other novel and nonobvious elements and are believed to be in proper condition for allowance.

It is well settled that to establish *prima facie* obviousness, all the claimed limitations must be taught or suggested by the prior art. In addition, there must be some teaching, motivation or suggestion in either the prior art or the references themselves to make the combination asserted by the Examiner. In reviewing the Office Action, the Examiner asserts, "It would have been obvious to [one] skilled in the art at the time the invention was made to modify the system of Tamir by providing it with a zooming mode or initialization of zoom at the beginning of the process, in order to focus on the desired portion of the image reliable and efficient processing, because without specifically focusing or zooming on the desired portion of the image, the process would not be completely effective or would not even work properly."

Case law makes it clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.¹ Combining prior art references without evidence of such a suggestion, teaching or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.² Evidence of a suggestion, teaching or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although "the suggestion more often comes

¹ *In re Dembiczak*, 50 U.S.P.Q.2d 164, 1617 (Fed. Cir. 1999).

² *Id.*; see also, e.g., *Interconnect Planning Corp. v. File*, 774 F.2d 1132, 1138, 227 U.S.P.Q. 543, 547 (Fed. Cir. 1985).

from the teachings of the pertinent references.”³ (“The Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them.”) The showing of such suggestion, teaching or motivation must be clear and particular.⁴ Broad, conclusory statements regarding the teaching of multiple references, standing alone, are not “evidence.”⁵

As previously stated, Tamir is directed to a video manipulation system for viewing sports events by, for example, coaches and players to understand their own and opponents’ past performance. (Tamir, ¶ 1, lines 13 through 16.) “Sports commentators also view and show video representations of team games in the course of analyzing these games for their viewers. (Tamir, ¶ 1, lines 16 through 18.) Tamir requires that “all moving objects in the scene (players, referees and the ball) are continuously detected and tracked from frame to frame.” Rather than zooming in on a single object, as required in the claims, Tamir teaches highlighting a video representation of an object included in a sequence of video representations of an event such as a sporting event rather than “beginning a zoom mode; identifying the first portion of an image; displaying the first portion; detecting motion of an object within the portion of the image; selecting a second portion of an image such that the object appears at least a predetermined distance from an edge of the second portion of the image,” so that Tamir teaches a completely

³ Dembiczak, 50 U.S.P.Q.2d 164, 1617 (Fed. Cir. 1999); *In re Roffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q. 2d 1453, 1459 (Fed. Cir. 1998).

⁴ Dembiczak, 50 U.S.P.Q.2d 164, 1617 (Fed. Cir. 1999); *see also e.g.*, *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q. 2d 1225, 1232 (Fed. Cir. 1998).

⁵ Dembiczak, 50 U.S.P.Q.2d 164, 1617 (Fed. Cir. 1999); *See also, e.g.*, *Elmurry v. Arkansas, Power & Light Co.*, 995 F.2d 1576, 1578, 27 U.S.P.Q.2d 1129, 1131 (Fed. Cir. 1993); *In re Sichert*, 566 F.2d 1154, 1164, 196 U.S.P.Q. 207, 217 (CCPA 1977).

different method of operation. (Tamir, ¶ 8, lines 50 through 52, *see also* lines 45 through 46, lines 5 through 8.)

With regard to the Examiner's assertion of the motivation of one skilled in the art to modify the system of Tamir, a careful examination of Tamir as cited reveals that, rather than teaching "a tuner operative to receive a video image; a video signal processor coupled to the tuner and operative to select a portion of the video image to provide a selected portion of the video image; and the video signal processor also operative, while all edges of the selected portion of the image are within the video image to zoom to the selected portion of the video image, to detect movement of an object within the selected portion of the video image and to select a second portion of the video image to redefine the selected portion of the video image." Tamir instead teaches tracking *all* objects in the scene by highlighting each object and avoiding motion-induced blur that would avoid tracking an object in a zoom mode. (Tamir, ¶ 10, lines 28 through 30.) Tamir further requires that "when the number of objects has decreased below a given threshold it becomes reasonable to assume that the set has degenerated into an insignificant scene and the program terminates." (Tamir, ¶ 10, lines 62 through 65.) Therefore, Tamir also teaches away from zooming because zooming would result in tracking only one or a reduced number of objects rather than all objects. As the number of objects decreases below a threshold, Tamir teaches that it becomes reasonable to assume the set had degenerated into an insignificant scene and the program therefore terminates. Consequently, Tamir teaches away from the claimed zoom mode because Tamir seeks, as a primary requirement, to track all moving objects in a scene by highlighting each object to facilitate "conceptualizing a whole wide field of view of an offensive or tactic" (Tamir, ¶ 11, line 37 through 44) rather than "a tuner operative to receive a video image; a video signal processor coupled to the tuner and operative to select a portion of the video image to provide a selected portion of the video image; and the video signal processor

also operative, while all edges of the selected portion of the image are within the video image to zoom to the selected portion of the video image, to detect movement of an object within the selected portion of the video image and to select a second portion of the video image to redefine the selected portion of the video image."

Tamir teaches resolving a problem completely different from that addressed in the claims, as described in Tamir:

"A problem that has been encountered and identified as a possible obstacle to the edge detection task is image degradation due to motion-induced blur. This may be due either to *camera scanning or to object motion*." (Tamir, ¶ 9, lines 21 through 24 emphasis added). "Proper measures to prevent edge and texture aliasing are taken when applying any part of these dynamic emphasizing techniques." (Tamir, ¶ 11, lines 27 through 29.)

Accordingly, since Tamir teaches avoiding artifacts such as motion-induced blur and aliasing, and since Tamir teaches the identification of an object by highlighting it, Tamir teaches away from the claims because any zooming in on an object would aggravate motion-induced blur, and possibly would aggravate edge and texture aliasing when applying a zoom function to the teachings of Tamir. As such, since the previously described portions of Tamir teach away from the claims, one skilled in the art would not be motivated to modify Tamir as suggested in the Office Action to provide a zoom video tracking image as claimed.⁶

The only reference in Tamir as cited relating to a zoom function states "the tracking procedure takes into account the fact that there may be a change of magnification (zoom in and zoom out) and of objects' poses throughout the succession of frames." (Tamir, ¶ 10, lines 10

⁶ A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984), M.P.E.P. 2141.02.

through 13.) However, the zoom function described is discussed in the context of the tracking procedure by highlighting the object, and the tracking procedure explicitly discusses the problems encountered and identified as possible obstacles to the tracking procedure. (Tamir, ¶ 9, lines 20 through 27.) Immediately after introducing the concept of zoom, Tamir discusses problems and obstacles associated with the tracking procedure, including “fusion,” “splitting” and “occlusion.” (Tamir, ¶ 10, lines 15 through 19.) Tamir suffers from the problems of zooming while tracking resulting in the motion-induced blur described in Tamir at ¶ 9, lines 21 through 24, and also as described in the background section of the instant application on pages 2 through 3:

Panning of the camera exacerbates the problem. Panning is a cinematographic technique in which a cameraman pivots the camera to show a scene that is too large to be shown conveniently in a single frame. When a camera is panned, the image appears to slide from one edge of the full frame to the other edge of the full frame. Accordingly, unless the zoom portion is moved with respect to the full frame, the zoom portion includes images that slide from one edge of the zoom frame to the other.

Accordingly, taken in its proper context, Tamir teaches the avoidance of zooming during the tracking mode because zooming and attempting to track all moving objects by highlighting each object in the scene (Tamir, ¶ 10, lines 28 through 30) would exacerbate the problems and obstacles that this modification sought to avoid. Therefore, taking the teachings of Tamir in their proper context shows that Tamir teaches a method and apparatus for tracking all moving objects in the scene (players, referees and the ball) by highlighting the objects of interest, while avoiding the problems associated with such tracking by attempting to mitigate motion-induced blur, aliasing, as well as detecting other phenomena such as fusion, splitting and occlusion. Accordingly, not only does Tamir teach away from providing a zoom video tracking image, as required in the claims as filed, but such a modification, as asserted in the Office Action, would indeed change the principle of operation of Tamir, because modifying Tamir to zoom in on any

particular object, while tracking all moving objects, would defeat the very purpose of analyzing all players and the ball, and would greatly increase problems associated with the tracking method Tamir specifically sought to avoid.⁷

However, in Tamir, the zoom mode is explicitly discussed with respect to the tracking procedure, and, since the tracking mode is explicitly discussed in the context of highlighting all objects in a playing field along with the avoidance of motion-induced blur, the tracking procedure employing a zoom mode must be read in that context. Taken in proper context, Tamir does state the only conditions under which a zoom mode would be appropriate. For example, Tamir repeatedly states that the purpose of Tamir is to track the objects and player via highlighting in a sports setting, and hence Tamir requires that the program terminate if the number of objects decreases below a certain threshold. Therefore, zooming would eliminate objects on the screen, causing the program to terminate and reducing the entire field of view. Tamir also teaches that the problems associated with tracking images would cause more difficulty in tracking the objects and players pursuant to the objectives of Tamir. The modification of Tamir to include a zoom mode as asserted by the Office Action would defeat Tamir's principles of operations of tracking an object and the players on a playing field and would aggravate rather than avoid artifacts that would interfere with tracking such as motion-induced blur and aliasing. Further, Tamir as cited in the Office Action fails to describe how the aggravation of zoom-induced blur and the aggravation of the reduction of a number of objects and players on a playing field through the use of a zoom may be overcome. Furthermore, the Office Action fails to explain how Tamir shows that Tamir takes into account these problems of

⁷ If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); *see also* M.P.E.P. 2143.01.

achieving the objective of Tamir, namely the tracking of all objects on a field and the use of well-defined edges such that blurring is reduced, not increased.

If one were to modify Tamir to provide the zooming mode function as claimed, namely, "selecting a second portion of an image such that the object appears at least a predetermined distance from an edge of the second portion of the image" rather than highlighting the tracked object, such a modification to Tamir would render Tamir unsatisfactory for its intended purpose because, again, rather than zooming in on an object, Tamir teaches tracking all moving objects in a scene for the purpose of analyzing a sporting event as discussed above.⁸ As previously stated, Tamir seeks to solve the problem of analyzing a "whole field of view of a sporting event," and therefore zooming in on an object would render such an analysis of the whole field of view impossible because a modification as suggested in the Office Action would reduce the field of view to less than the whole field of view of a sporting event and make the analysis sought to be performed in Tamir greatly hindered, if not impossible.

One would not have any reasonable expectation of successfully reproducing the claimed invention, if so modified as asserted in the Office Action. The Applicants respectfully submit that the Examiner has misinterpreted Tamir and merely attempted to reconstruct the subject matter of the claims, rather than pointing to specific information in Tamir that suggests the combination as claimed, namely, "selecting a second portion of an image such that the object appears at least a predetermined distance from an edge of the second portion of the image." As stated above, Tamir describes solving the problem usually encountered in the analysis of team games where the difficulty is in conceptualizing a whole wide field of view of an offensive or

⁸ If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 200, 221 U.S.P.Q. 1125 (Fed. Cir. 1984); *see also* M.P.E.P. 2143.02.

defensive tactic out of the succession of partially overlapping video frames that were captured by at least one television camera using a relatively narrow field of view for entering around the location of the ball and active players. (Tamir, ¶ 11, lines 38 through 44.) Zooming would provide less than a “whole wide field of view” and would therefore defeat the objective of conceptualizing a whole wide field of view of an offensive or defensive tactic. As described above, not only is there no motivation to combine or to modify Tamir to perform the zoom mode as previously stated, Tamir actually teaches away from the claimed zoom mode. The Applicants respectfully submit that the Examiner’s obviousness analysis is limited to a discussion of the way Tamir can be modified to read in the claims.

Further, the proposed modification of Tamir would result in impermissibly changing the principle of operation of Tamir, and further yet, would render Tamir unsatisfactory for its intended purpose. Because Tamir is directed to a system that teaches away from allowing a user to zoom in on a portion of an image, Tamir fails to teach or suggest each and every element in the claims. The Applicants respectfully request a showing as to a reference that would make obvious each element as arranged in the claims. Consequently, at least for the reasons stated above, the alleged reference-by-reference and limitation-by-limitation analysis fails to demonstrate how Tamir teaches or suggests the combination to yield the claimed invention. As a result, the Applicants submit that the Office Action fails to establish a *prima facie* case of obviousness for all the claims.

Dependent Claims 6 and 15

The Office Action acknowledges that “Tamir does not specifically disclose canceling zoom, although Tamir suggests a zoom mode would be utilized as in Fig. 4, because without zooming on the desired image as in Fig. 4, the processing would not [be] effectively performed.” However, the Office Action cites to Lee at col. 7, lines 1 through 6, which states that, if it is

judged that no more zooming can be performed while the object is not included in the effective region, the zoom/focus controller 6 recognizes that the object is beyond the tracking range of the zooming operation and controls the process to return to Step 310 of the initial step (Step 371c), which is limited to returning processing to Step 310 rather than "to cancel zoom in response to the difference exceeding a predetermined threshold". As a result, even if combined with Lee, Tamir would not teach "wherein the video signal processor is further operative to determine a difference between the first portion of the video image and the second portion of the video image, and to cancel zoom in response to the difference exceeding predetermined threshold." Claims 6 and 15 further recite other novel and nonobvious elements and are believed to be in proper condition for allowance. Therefore, the Office Action fails to establish how the combination of Tamir and Lee render Claims 6 and 15 obvious.

Dependent Claim 7

Dependent Claim 7 recites "wherein the television system is one of a set top box, a desk top box, and a personal digital system." The Applicants are unable to find where Fig. 1 describes a set top box, a desk top box, and a personal digital assistant. Therefore, the Applicants request the Examiner to provide a limitation-by-limitation analysis of each and every element as arranged in the claims and a corresponding citation in the reference, as appropriate. As such, the Office Action fails to describe all of the limitations of Claim 7 and how they are recited in Fig. 1 of Tamir. Additionally, the Applicants repeat the same remarks with respect to Claims 1 and 5. Therefore Claim 7 is believed to be in proper condition for allowance.

Dependent Claim 16

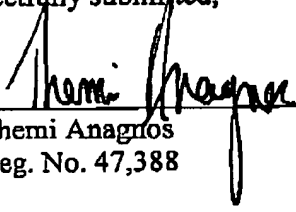
The Applicants repeat the above relevant remarks, including those with respect to Claims 1, 4, 8 and 14. Claim 16, dependent upon independent Claim 14, contains new and

nonobvious matter not contained in Claim 14 and therefore is also believed to be in proper condition for allowance.

The Applicants respectfully request that the pending claims be allowed to issue. Should the Examiner wish to discuss any aspect of the application, the Examiner is invited to contact the undersigned at his convenience directly at (312) 609-7970.

Respectfully submitted,

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Dated: July 20, 2004

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